TACOM

Mobility and Firepower
for America's Army

TARDEC

RAPIDLY INSTALLED FUEL TRANSFER SYSTEM (RIFTS)

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Why RIFTS is Important?

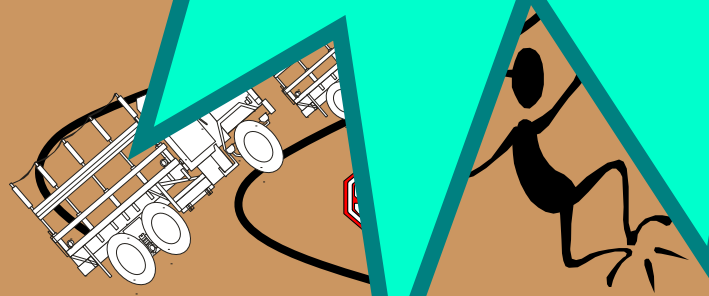
Distribution #1 Challenge in

RIFTS is the ideal Solution

Trucking
solution

throughput

hicle every 4
s in peak
per
-- 1 Vehicle every
39 Seconds for
180 days

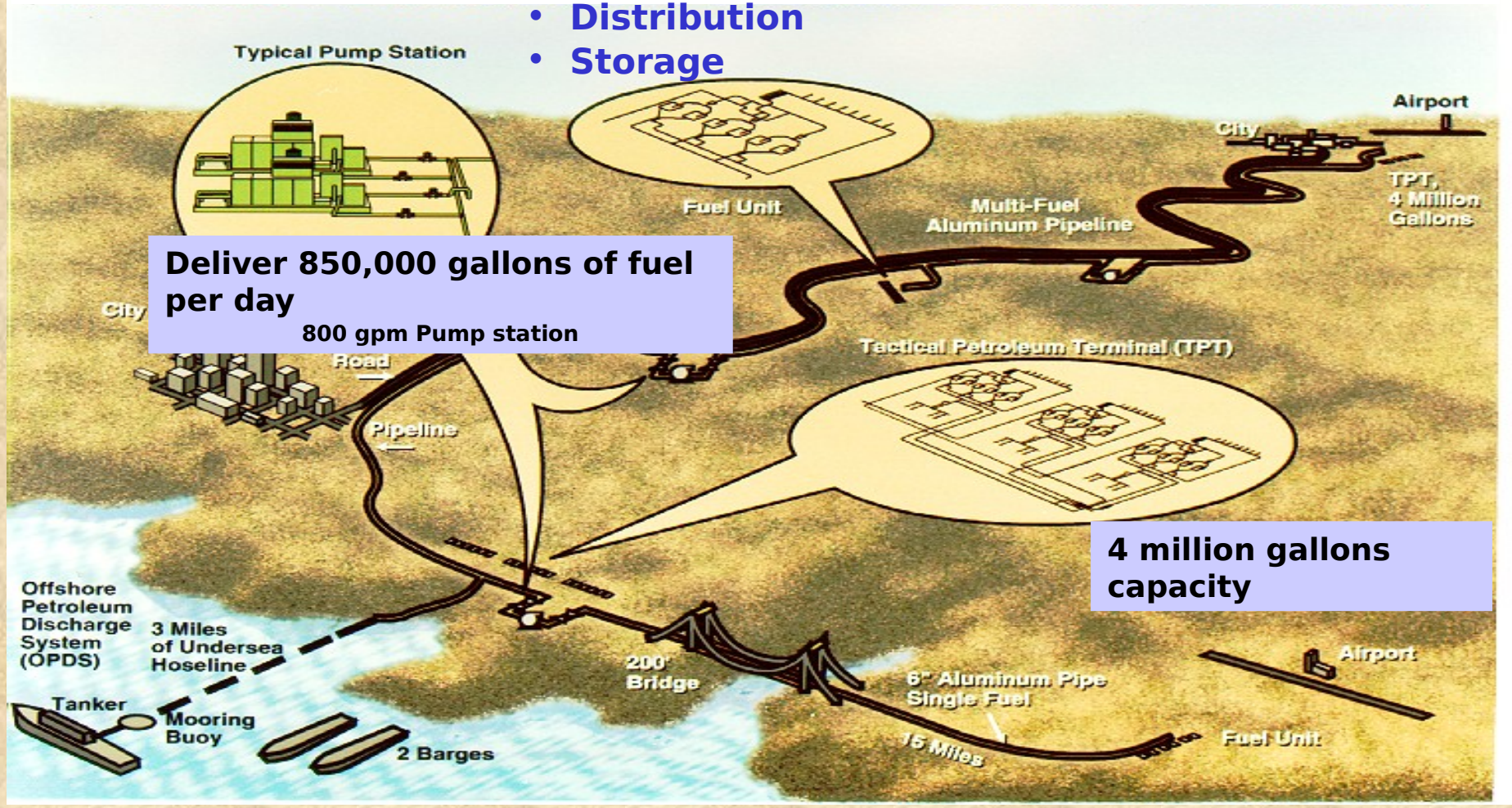


Current System

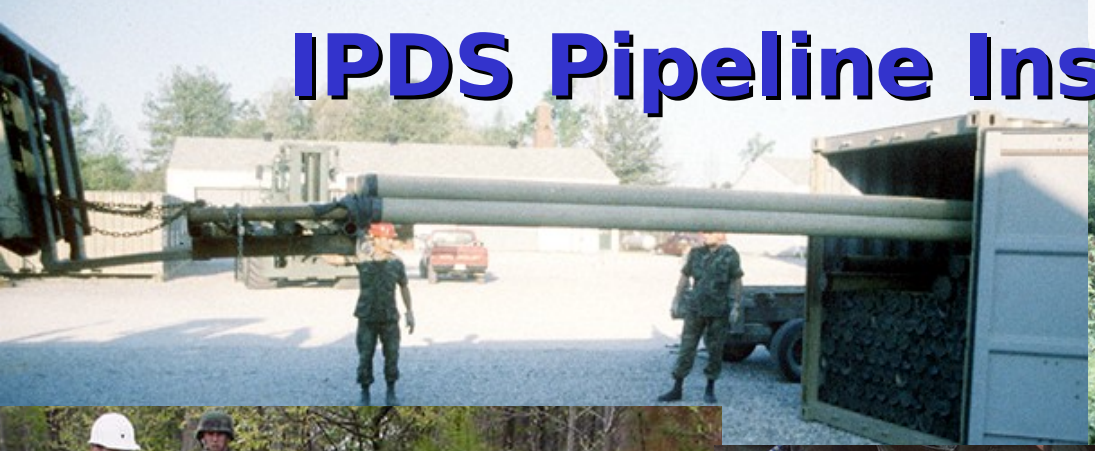
TARDEC

Bulk Fuel Storage and Distribution System Function

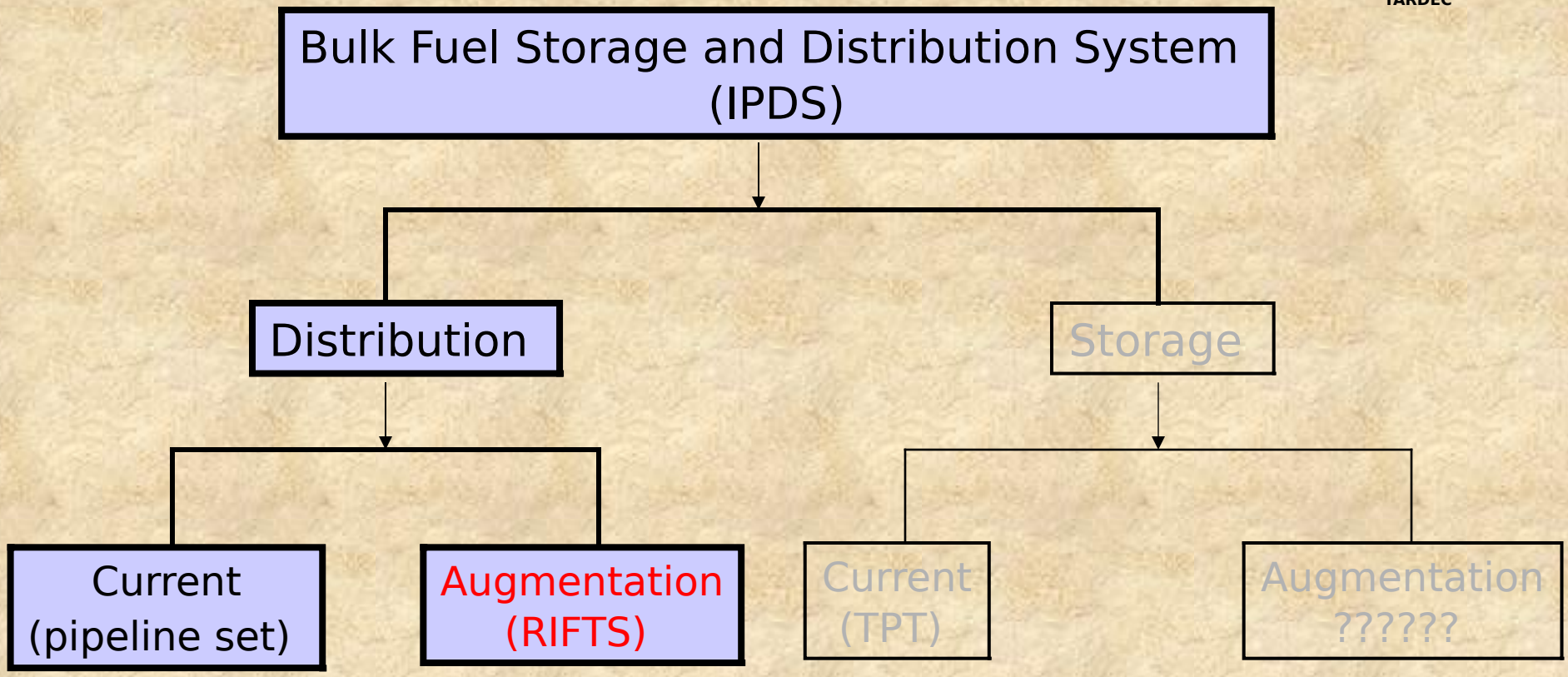
- Distribution
- Storage



IPDS Pipeline Installation Process



RIFTS
Concept



RIFTS

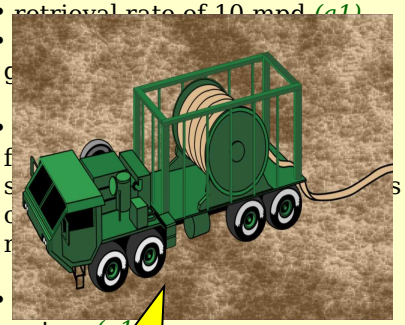
Sub-components

LEAK DETECTION

- de… …ss of 10 … …ng the …

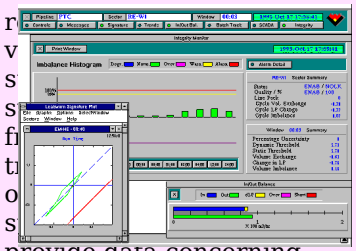
CONDUIT

- installation rate of 20 mpd *(a1)*
- retrieval rate of 10 mpd *(a1)*
- …
- …
- system *(a1…*
- re… …r the conduit *(a17)*
- pr… …or rapid cr… …ing, ri… …gaps … 200



COMMAND AND CONTROL

- r… v… s… s… f…
- t… o… s…
- provide data concerning flow rates and total to the tactic… …uel automation syste… *(a12)*

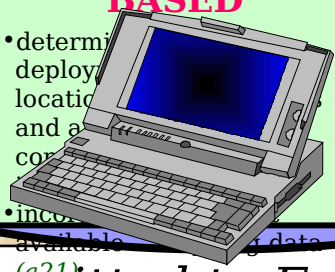


PUMP STATION

- … *(a5)*
- u… …s c… r…
- f… s…

PORTABLE COMPUTER BASED

- determi… deploy… locatio… and a… co…
- inco… …g data available *(a21)*



ORD Approved OCT 00

Overall System requirement

- **50-miles of conduits and associated items per RIFTS system** *(a4)*
- **shelf life of 15 years and useful life of 10 years** *(a8)*
- **package in ISO-1C containers < 20 feet in length** *(a9, a13)*
- **grounding of all major component** *(a11)*
- **compliance with all current Electromagnetic Emission Interface (EMI) and electromagnetic emission susceptibility requirements** *(a15)*
- **operate in temperatures from -25 ºF to 120 ºF (AR 70-38)** *(a16)*
- **RAM** *(a18)*
- **minimize the strategic lift** *(a23)*

Other System Characteristics

- **NBC survivable** *(d1)*
- **C-130 and CH-47 aircraft transportable** *(d2)*
- **Include tiedowns IAW MIL-STD-209** *(d2)*

RIFTS
Advantage

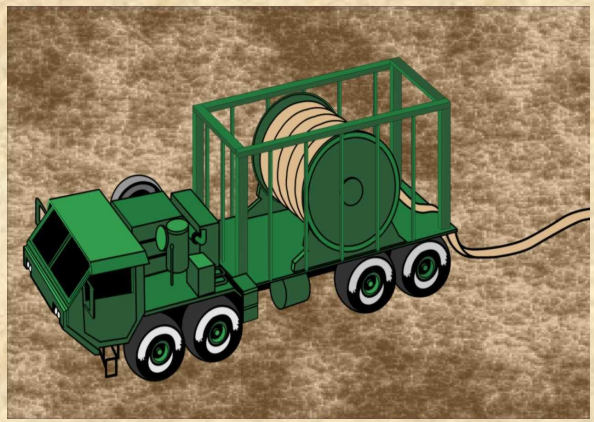
- Increase emplacement rate

Pipeline Set

3 - 5 miles per day

For a 100-mile system takes 20 to 30 days for complete deployment

RIFTS



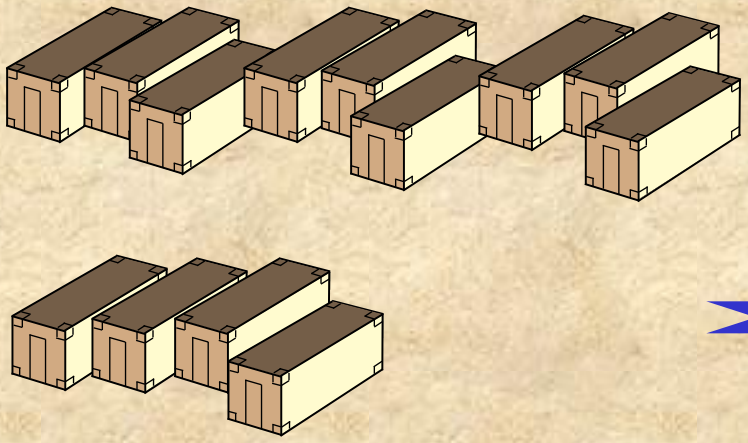
20 - 30 miles per day

For a 100-mile system takes 3.5 to 5 days for complete deployment

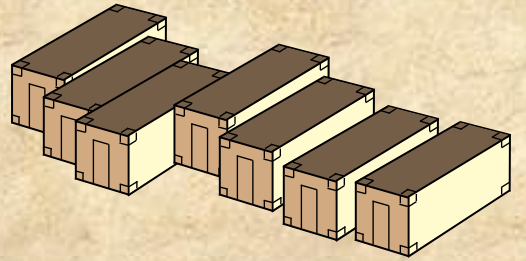
RIFTS
Advantage

- Reduce the immense demand on strategic lift assets

Pipeline Set



RIFTS



- 5-mile set: total of 13 ISO-1CC containers
  - → 9 containers are for pipe only
  - 4 containers are for couplings, adapters, and support equipment

For 100-mile >> 260 containers

- 5-mile set: 50% reduction
  - saving of 6 containers

For 100-mile >> 130 containe

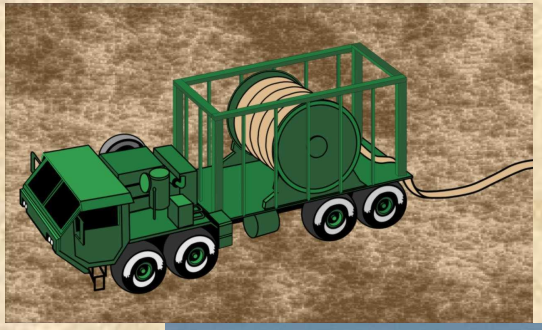
RIFTS
Advantage

- Reduce Manpower / Equipment

Pipeline Set

- requires pipe connection every 19 feet
- requires rehandling

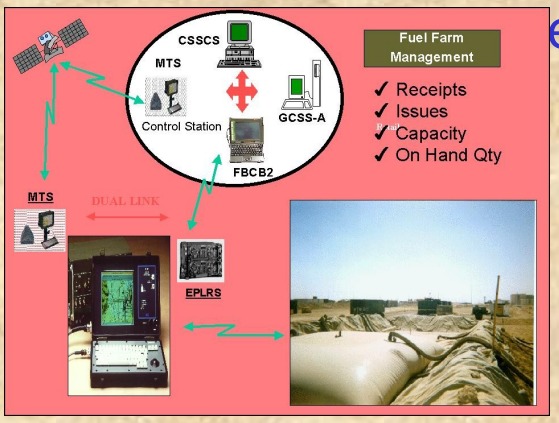
RIFTS



- continuous pre-couple hose for at least 1/2 mile on each reel

RIFTS
Other Advantages

- Eliminate thermal expansion consideration
- Minimize stabilization requirement
- Reduce time for pump station emplacement
- Environmental Advantage: less potential leak points, leak detection system for fast location of leak points
- Reduce trace preparation
- Free up MSR, reduce bottle neck
- e asset visibility (C2M)



RIFTS
Supporters / Sponsors

Supporters

CASCOM
CENTCOM
ARCENT
TUSA
DCSLOG
PM Force Projection
49th group

Sponsors

PM-PAWS

Current Effort

1. Deployment/Retrieval Feasibility Analysis

- Purpose is to assess the feasibility of meeting the deployment/retrieval requirement using a one-mile prototype system
- Two contracts were awarded on February 21
- Demonstration of the two systems will be held in Spring of 2002 at Ft. Pickett
- Evaluation will be performed to identify the best characteristics of both systems, and update the purchase description accordingly

Current Effort -- continued

2. Hose Development

- Purpose: to obtain higher pressure, lightweight, collapsible hose; Explore innovative/emerging fibers, coatings, and manufacturing techniques for hose
- Maximize potential of existing materials & manufacturing methods:
  - Advanced fibers: VECTRAN, Zylon, Kevlar
  - Circular weaving vs. bi-axial braiding vs. tri-axial braiding
  - Polyurethane coatings
  - Through-the-weave extrusion
  - Double-jacketing
  - Cabling (experimental yarning technique)

3. Automation Demonstration

- Conduct market research, purchase, and assemble scale-model on the Command & Control Module, leak detection system, and Pump Station
- Demo is tentatively scheduled to be held in Spring of 2002 at Ft. Pickett

Program Schedule

Tasks	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Concept & Tech Development (CTD)		CTD							
Deployment/Retrieval Demo									
Automation Demo									
System Dev & Demo (SDD)			SDD			LRIP			
One System Integration Contract (existing hose)									
Production						OP			
STO			STO						
Lightweight Collapsible High Pressure Hose									
STO 6.2		185 *							
(unfunded 6.2)		(1000)	(1000)	(2000)	(3000)				
PM PAWS 6.4, 6.5	1686	3409	6603	130	550	500			
Unfunded 6.4, 6.5			(10000)	(7000)	(3000)	(1000)			
OPA						5000	5000	5000	5000

* PM's money

Summary

- RIFTS is the distribution module of the next generation bulk fuel distribution system
- ORD approved in October 2000
- Major Characteristics
  - → fast deployment and retrieval rate
  - reduced strategic lift assets
  - reduced manpower
- RIFTS is the solution to the fuel distribution problem that the Army faces

Demonstration Info

- TACOM-TARDEC is holding a two-week demonstration of prototype deployment and retrieval systems and a model system command and control model starting 22 April 2002 at Fort Pickett. The purpose of the demonstration is to show the feasibility of meeting the three primary operational requirements: a ten-fold increase in emplacement rate (from 2-3 to 20-30 miles per day), a 50% reduction in strategic lift, and a minimum of 50% reduction in equipment and labor required for emplacement .
- The demonstration will consist of two separate activities.
  - Demonstration of the deployment/retrieval mechanism. Two separate and distinct concepts on the deployment and retrieval devices will be operated over various trace profiles.
  - Demonstration of the automatic operations using a scale model. Focus will be operating the RIFTS using fewer personnel than the IPDS pipeline, the effectiveness of the leak detection system, automated valve operations, automated pump operations, a partially completed command and control module, and computer based planning aid
- VIP day will be 02 or 03 MAY 02. Invitations will be sent out next week. Please contact Rebecca Li to get on the mailing list. (Lireb@tacom.army.mil or 586-574-4152)